|     | RRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRR | AAAAAAA<br>AAAAAAA<br>AAAAAAA | 2222222222<br>22222222222 |                   |
|-----|----------------------------------------|-------------------------------|---------------------------|-------------------|
| TTT | RRR RRR                                | AAA                           | CCC                       | CEECECECECECE     |
| tit | RRR RRR                                | AAA AAA                       | ČČČ                       | EEE               |
| tit | RRR RRR                                | AAA AAA                       | ččč                       | EEE               |
| ttt | RRR RRR                                | AAA AAA                       | ččč                       | EEE               |
| ŤŤ  | RRR RRR                                | AAA AAA                       | ččč                       | ĒĒĒ               |
| ŤŤŤ | RRR RRR                                | AAA AAA                       | ččč                       | ĒĒĒ               |
| iti | RRRRRRRRRRRRR                          | AAA AAA                       | ŠŠŠ                       | EEEEEEEEEE        |
| İİİ | RRRRRRRRRRRR                           | AAA AAA                       | 555                       | EEEEEEEEEE        |
| TIT | RRRRRRRRRRRR                           | AAA AAA                       | ččč                       | EEEEEEEEEE        |
| iii | RRR RRR                                | AAAAAAAAAAAAA                 | ččč                       | EEE               |
| TTT | RRR RRR                                | AAAAAAAAAAAA                  | ččč                       | FFF               |
| ŤŤŤ | RRR RRR                                | AAAAAAAAAAAA                  | ČČČ                       | FFF               |
| ŤŤŤ | RRR RRR                                | AAA AAA                       | ČČČ                       | EEE<br>EEE<br>EEE |
| TTT | RRR RRR                                | AAA AAA                       | ČČČ                       | EEE               |
| TTT | RRR RRR                                | AAA AAA                       | ČČČ                       | EEE               |
| TTT | RRR RRR                                | AAA AAA                       | 222222222                 | EEEEEEEEEEEEE     |
| TTT | RRR RRR                                | AAA AAA                       | 2222222222                | EEEEEEEEEEEEE     |
| TTT | RRR RRR                                | AAA AAA                       | 2222222222                | EEEEEEEEEEEEE     |

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| \$\$\$\$\$\$\$\$\$<br>\$\$\$\$\$\$\$\$\$\$\$<br>\$\$<br>\$\$<br>\$\$<br>\$\$<br>\$\$<br>\$\$ |                                  | RRRRRRRR<br>RRRRRRRR<br>RR RR<br>RR RR<br>RR RR<br>RR RR                 | UU UU UU UU UU UU UU UU UU UU UU UU UU | CCCCCCC<br>CC<br>CC<br>CC<br>CC<br>CC<br>CC                                | DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD | EEEEEEEEE |
|----------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------|----------------------------------------|-----------|
| \$\$\$\$\$\$\$<br>\$\$<br>\$\$<br>\$\$<br>\$\$<br>\$\$<br>\$\$<br>\$\$<br>\$\$               | 11<br>11<br>11<br>11<br>11<br>11 | RRRRRRR<br>RR RR<br>RR RR<br>RR RR<br>RR RR<br>RR RR                     |                                        | 00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00<br>00 | DD DD DD DD DD DD DD DD DD DD DD DD DD |           |
| RRRRRRRR<br>RRRRRRRR<br>RR RR<br>RR RR<br>RR RR<br>RRRRRR                                    |                                  | QQQQQQQ<br>QQ<br>QQ<br>QQ<br>QQ<br>QQ<br>QQ<br>QQ<br>QQ<br>QQ<br>QQ<br>Q |                                        |                                                                            |                                        |           |

\*\*FILE\*\*ID\*\*STRUCDEF

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STRUCDEF -- DECLARATION FILE FOR DATA STRUCTURE DEFINITION AND ACCESS MACROS USED IN THE VAX DEBUGGER

Version:

'V04-000'

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WRITTEN BY Bert Beander August, 1981.

MODULE FUNCTION:

This REQUIRE file contains all macros used in defining and accessing data structures (BLISS BLOCKs) in the VAX Debugger. These symbolic names should always be used in BLISS Field-References.

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The following macros must be used in defining field names for all data structures in the Debugger. These macros supply the position, size, and sign-extension values when used in FIELD declarations for BLOCK and BLOCKVECTOR data structures. The various generic forms (as specified by the letters in the names) are as follows:

A Materialized address
L Longword
W Zero-extended word
B Zero-extended byte
V Zero-extended bit field
SW Sign-extended word
SB Sign-extended byte
SV Sign-extended bit field

The "A" form should be used whenever the field being defined is such that only the address of the field may be materialized in a structure reference; that is, fetch and store operations on the field are not valid. An example of such a field is an ASCII string.

Each of the 'V' and 'SV' forms take one or two parameters. The first parameter is the bit position within the longword (or byte) and the second is the field size in bits. The second parameter is optional; if omitted, it defaults to 1. Thus  $V_{-}(5)$  means bit 5 while  $V_{-}(5,3)$  means the 3-bit field starting at bit 5 and ending at bit 7. Bit positions are counted from the low-order (least significant) end of the longword, starting at zero.

The following data structure picture shows the locations of the various fields that can be specified. Note how the bit positions are numbered along the top of the illustration.

## 

| 0 | 1   |     | L <sub>+</sub> |       |
|---|-----|-----|----------------|-------|
| 1 |     | wi_ |                | MO_   |
| 2 | B3_ | B2_ | B1_            | : B0_ |

MACRO

 $A_{\perp} = 0$ , 0, 0 %, ! Address of a longword

A0 = 0. 0. 0 %. ! Address of byte 0 A1 = 8. 0. 0 %. ! Address of byte 1

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```
= 16. 0. 0 %:
= 24; 0: 0 %:
                                           ! Address of byte 2 ! Address of byte 3
A2-
              0, 32,
0, 16,
0, 8,
                         000
                                             Longword
Word, zero-extended
           =
                                             Byte, zero-extended
          = 0. 16.
                                           ! Word 0 zero-extended ! Word 1 zero-extended
B0_
B1_
B2_
B3_
                    80008
                                             Byte 0 zero-extended
Byte 1 zero-extended
Byte 2 zero-extended
Byte 3 zero-extended
                         00 X.
              8.
           =
          = 16.
V_(P,S) = P, %IF %NULL(S) %THEN 1 %ELSE S %FI, 0 %, ! Unsigned bit field
Bits in B0_Bits in B1_Bits in B2_Bits in B3_
SW_
SB_
              0. 16.
                                           ! Word, sign-extended ! Byte, sign-extended
SWO_
SW1_
                                           ! Word 0 sign-extended ! Word 1 sign-extended
SBO_
SB1_
SB2_
SB3_
                                             Byte 0 sign-extended
Byte 1 sign-extended
Byte 2 sign-extended
Byte 3 sign-extended
              8.
           =
          = 16.
SV_(P,S)= P, %IF %NULL(S) %THEN 1 %ELSE S %FI, 1 %, ! Signed bit field
```

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END OF STRUCDEF.REQ

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